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and would probably have been passed over by one making a careless examination. The Medical *Presse* of Vienna reports 80 cases at one town and 40 at another city, and the more recent fatal cases on board the British School ship *Cornwallis* would appear to suggest the importance of an official examination of all pork to be used for food.

PHILOSOPHICAL SOCIETY OF WASHINGTON.

At the one hundred and ninety-second meeting of the Philosophical Society, of Washington, a very interesting communication was read by Prof. J. W. Chickering, entitled, "Notes on Roan Mountain, North Carolina."

The Appalachian chain with its undulating line of 1300 miles from the promontory of Gaspé on the Gulf of St. Lawrence to Georgia and Alabama, beginning as a series of folds of moderate height, increases in complexity and altitude from north to south, attaining its greatest elevation in the Black Range of North Carolina. Following it from Gaspé to the Hudson we find the single chain of the Green Mountains reaching its extreme height in Mt. Mansfield, 4430 feet; the outlying cluster of the White Mountains with Mt. Washington, 6288 feet, and others exceeding 5000 feet; Mt. Katahdin, in Maine, about 5200 feet; the Adirondacks, with Mt. Marcy, 5379 and the Catskills considerably lower. From the Hudson to New River, Va., a distance of 450 miles, it gradually gains both in width and altitude. It consists of many parallel ranges with fertile valleys between, of which the great Valley of Virginia is the largest and best known, and all in reality a part of that Piedmont region. In Pennsylvania the summits vary from 800 to 2500 feet. Towards the south the chains become more numerous and indented, and in Virginia the Peaks of Otter reach 4000 feet. The extreme eastern range is called the Blue Ridge, the extreme western the Cumberland Mountains, or more properly *plateaus*, while the high range or ranges between is in general called the Alleghenies.

From the New River southward, the system becomes more complex. The main chain hitherto called the Blue Ridge is deflected to the west, and for 250-300 miles in a circuitous chain under the names of Iron, Stone, Bald, Great Smoky and Unaska Mountains joins the boundary between North Carolina and Tennessee, rising frequently to a height exceeding 6000 feet. The more easterly range retaining the name of Blue Ridge, having its southern terminus in Caesar's Head in South Carolina, turns abruptly to the northwest and reaches even loftier altitudes, Mitchell's Peak being accredited with 6717 feet. In North Carolina these two ranges are more than 50 miles apart, are partially connected by transverse ranges, and for more than 100 miles constitute a great central plateau like that of Colorado on a small scale.

The eastern chain or Blue Ridge is still the watershed, and on the Atlantic slope gives rise to the Roanoke, Catawba, Broad, Saluda and Savannah rivers. On the other side, this area of mountains and plateaus is separated by transverse chains into many deep basins. At the bottom of each runs one of those mountain streams, the New Watanga, Nolchucky, French, Broad and others. These are compelled to cut their way to join the Tennessee through gaps, gorges and defiles in the heart of this great chain, giving us some of the most picturesque scenery to be found on the continent.

In the midst of this region with all three ranges in sight stands Roan Mountain (a Laurentian mass), the State line crossing it at an altitude of 6391 feet. I desire to call attention to some of the peculiarities of the region as contrasted with the northern Appalachians.

Standing upon the summit of Roan we look into seven different States, and command a horizon of 30 to 80 miles. On the north and west the eye catches the Cumberland Range on the horizon, and in the interval the great Cumberland plateau, and many other ranges, but all as level as if designed for railroad embankments—sometimes

not a peak to be seen in 40 miles of crest. On the south is a wilderness of mountains. Guyot gives fifty to sixty with altitudes exceeding 6000 feet, and yet the highest is only 6717, and perhaps forty of them between 6000 and 6500, and hundreds of others 5000 +. The valleys rarely go below 3000 feet. The railroad after leaving Lynchburg in a few miles reaches 1000 feet, and from that point for nearly 300 miles rarely goes below 1500 feet, and at one point reaches 2550. The true Piedmont region, extending through to Virginia, North and South Carolina, Georgia, Alabama and Tennessee, at an elevation of 1500 to 2500 feet, offers as attractive a region for health and comfort as can be found on the globe.

Uniformity of temperature. During nine weeks the mercury indicated once 75°, seven times 70°+, once 45°, three times 50°—, the general daily variation being between 55° and 65°. The spring a few rods from the hotel, has a temperature of 45°. Equally remarkable was the uniformity of atmospheric pressure, the highest barometer being 24.19, and the lowest 23.87. No wind had a velocity greater than 20 miles an hour, and seldom reached ten miles. The last time I was at Mt. Washington, in August, the mercury was 36° and the wind 40 miles.

Fertility of summit. Instead of the upper 1000 feet being, as in most of the higher northern peaks, a pile of barren rocks with lichens their only vegetation, the summit of Roan and many other peaks is a smooth grassy slope of the most vivid green, dotted with clumps of *Alnus viridis*, *Rhododendron Catawbiense*, the soil one or two feet deep and black. How this amount of humus was accumulated, and what cause destroyed the forests which its existence seems to indicate as formerly existing are questions not easily answered. The valleys are very fertile and adapted to almost any crop.

At an elevation of 3000 to 4000 feet occurs a belt of the most magnificent forest trees I have ever seen. Hundreds of chestnuts, sugar maples, lindens, tulip trees, yellow beeches, and buck-eyes were seen from four to seven feet in diameter, and rising 70 to 80 feet without a limb. One chestnut measured 24 feet in circumference, and one black cherry 19 feet. Thorn bushes were as large as apple trees, and with dwarf buck-eyes and yellow beeches looked like old orchards of vast extent in the higher levels.

Flora. Ascending the mountain, the vegetation takes on a northern aspect. Hemlocks abound till near the summit, where they are replaced by *Abies Fraseri*, the characteristic spruce of these summits. *Anemone nemorosa*, *Oxalis acetosella*, *Rubus odoratus*, *Aster acuminatus*, *Habenaria orbiculata*, *Ribes lacustris* and *prostratum*, *Veratrum viride*, *Lycopodium lucidulum* and similar species, remind one of the woods of Maine and New Hampshire. The peculiar flora of the upper 1000 feet greatly resembles in habit those of the White Mountains, but very few are of the same species. *Paronychia argyrocoma*, *Alnus viridis*, and a species of *Lycopodium* are almost the only plants occurring to me as common to the two localities. *Anemone Grœnlandensis* is replaced by *A. glabra*; *Solidago thyrsoides* by *S. glomerata*. The species peculiar to these mountains in general are hardly sub-alpine, and thus continuous with similar species further north but rather apparent instances of local variation, many species being confined to very narrow localities. The same is true of the molluscs. On Mt. Washington, a few rods will sometimes give the same plant in bud, flower and fruit, as a north or south exposure, a precipice, or a snow-drift, may retard or accelerate growth. But on these southern mountains no such difference obtains any more than in the valleys below.

On this communication Professor J. W. Powell remarked that the uniformity of altitude of the peaks is a feature resulting from the fact that the mass out of which they have been carved by erosion possesses a plateau structure. The elevation of that region was dis-

tributed in its effects with an approach to uniformity over a wide extent of country, and was unaccompanied by those sharp flexings or the protrusions of abrupt granitic cores which are encountered in some portions of the Appalachians and other mountain regions. The individual masses and ranges in the Cumberland region are the work of erosion acting upon a broad platform, excavating wide valleys and narrow gorges, leaving the peaks and ridges as cameos and mere remnants of the general degradation of the entire region. Professor Powell exemplified the process by citing the Uinta Mountains as a broad platform similarly carved by an enormous erosion.

Mr. Lester F. Ward then read a communication entitled, "Field and Closet Notes on the Flora of the District of Columbia." Mr. Ward's paper was more comprehensive than its title indicated. He read extracts from a local monograph which he has been preparing on the Flora of the District of Columbia. The work has been done by Mr. Ward in his usual energetic, thorough, and philosophical manner, and presents many points of interest. It will be published in full by the Society.

THE ANTHROPOLOGICAL SOCIETY OF WASHINGTON.

The Society met in the lecture room of the National Medical College on Tuesday evening, February 1, Major J. W. Powell in the chair. By the provisions of the Constitution the retiring President is required to deliver his annual address at the meeting succeeding that held for the election of officers, and to review therein the work of the Society during the past year. As before mentioned, the reasons for the publication of elaborate proceedings, existing in the case of other societies, do not obtain here. The President, therefore, in connection with his address, had prepared a pamphlet of 100 pages, in which were embodied abstracts of every paper read during the two years of the Society's existence, together with a brief history of its formation, the two annual addresses, the constitution, and the list of officers and members. The whole constitutes a very important contribution to knowledge.

Major Powell thus presented a classification of the papers and discussed the several subjects treated in their order, namely: Archæology, ethnography, linguistics, biology, philosophy, technology, sociology, and mythology. As the address will appear in full as a part of the pamphlet, it is not necessary to present an abstract.

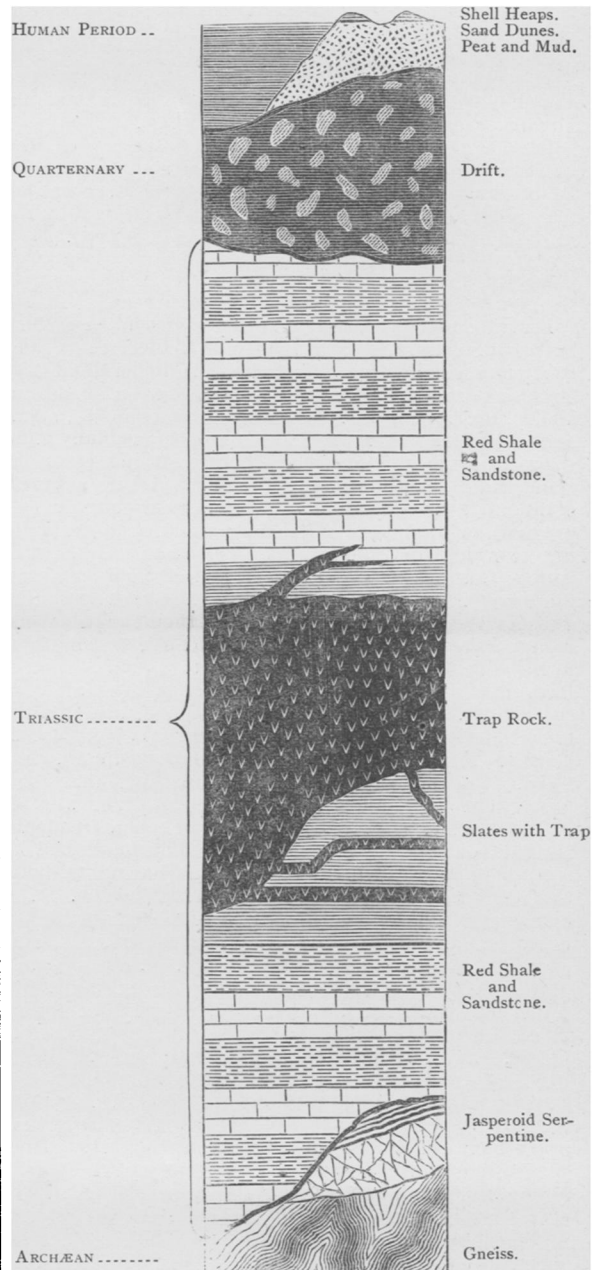
DETERMINATION OF GOLD AND SILVER IN ALLOYS, AFTER QUARTATION WITH CADMIUM.—Two portions of the alloy, each of 0.25 grms., are weighed off and placed with the cadmium in small porcelain vessels. A piece of potassium cyanide is melted in a porcelain capsule over the flame, and the metal thrown in. The melting together takes place readily, and is complete in a few minutes. By changing with two or three porcelain capsules, and having a vessel with warm water at hand, in which the melted portion is dissolved when sufficiently cool, twenty to thirty meltings can be executed in an hour. The two metallic granules are now thrown together into a small long-necked flask, in which is nitric acid of sp. gr. 1.30; a piece of wood charcoal is introduced to prevent bumping—which would rupture the globules—and heat is gently applied. The first solution lasts rather long, according to the proportion of gold; e.g., an hour in case of fine gold. The solution is poured off, the boiling repeated with nitric acid of sp. gr. 1.3 for ten minutes, the liquid again poured off, the globules rinsed with hot water, boiled for five minutes with water, which is poured off, and the flask filled with water is inverted into a porous earthen crucible, dried, ignited strongly, proceeding as in cupellation. In most cases the globules can be weighed separately. Silver is determined in the solution of titration with ammonium sulphocyanide according to Volhard's method.—FR. KRAUS.

A SKETCH OF THE GEOLOGY OF HUDSON COUNTY, N. J.*

BY ISRAEL C. RUSSELL.

An outline of the geology of Hudson County, N. J., is delineated in the accompanying generalized section.

FIG. 1.—GENERALIZED SECTION OF THE ROCKS OF HUDSON COUNTY, N. J.



At the base of the series is crystalline gneiss of Archæan age, which is exposed in a few reefs along the shore of the Hudson in Jersey City. These rocks are composed mainly of quartz, feldspar and mica, and form highly crystalline gneiss, mica schist, hornblende schist, etc., and are not to be distinguished from the rocks of

* Taken from a paper published in the *Annals of the N. J. Academy of Sciences*, Vol. II., No. 2, pp. 27-80.